TR	ANSMITTAL OF INFORMATION DISCLO (Under 37 CFR 1.97(b) or 1.0	Docket No: PM 2000.010					
In Re A	pplication Of: Hans Thomann, et al.		•				
	Filing Date 973,529 October 2001	Examiner	Group Art Unit				
Title:	Method for Borehole Measurement of Formatio	n Properties					
	Assistant Commi	ess to: ssioner for Patents n, DC 20231					
	37 CFF	R 1.97(b)					
1. 🛚							
	37 CFF	R 1.97(c)					
2.	The Information Disclosure Statement submfiling of a national application, or the date of in an international application; or after the whichever occurred last but before the mailing	entry of the national stage a mailing date of a first Ot	s set forth in 37 CFR 1.491				
	1. a Final Action under 37 CFR 1.	113, or					
	2. a Notice of Allowance under 37	CFR 1.311,	TEC				
	Whichever occurs first.		27.				
	Also submitted herewith is:		RECEIVED AUG 18 20 3				
	a certification as specified in 37 CFR	1.97 (e);	∃VE 8 20 CENTI				
	C	DR	R 2800				
	the fee set forth in 37 CFR 1.17 (p) for under 37 CFR 1.97(c).	er submission of an Informati	⊖ on Disclosure Statement				

<u> </u>		·	
TRANSMITTAL OF INFORMATION DISCLO	Docket No: PM 2000.010		
In Re Application Of: Hans Thomann, et al.			
Serial No. Filing Date 09/973,529 09/973,529 09/973,529	Examiner	Group Art Unit	
Title: Method for Borehole Measurement of Formation	on Properties		
Payme (Only complete if Applicant elects to	nt of Fee pay the fee set forth in 37 CF	FR 1.17(p))	
A check in the amount of is attached.			
The Assistant Commissioner is hereby authoriz as described below. A duplicate copy of this sh  Charge the amount of  Credit any overpayment.  Charge any additional fee required.		osit Account No. <b>05-1328</b>	
Stophen P./Coch Signature	January	21 200 Z Dated	
Stephen P. Koch, Reg. No. 37,660  ExonNobil - Upstream Research Company P. O. Box 2189 Houston, TX 77252-2189 (713) 431-4811 Phone			
(713) 431-4664 Fax	Service as first of	class mail under 37 C.F.R. 1.8 and is Assistant Commissioner for Patents,	
cc: LVA, JAJ		of Person Mailing Correspondence  Maureen M. White	

## INFORMATION DISCLOSURE CITATION (Use several sheets if necessary)

Docket Number (Optional)
PM 2000.010

Application Number 09/973,529

Applicant

Hans Thomann, et al.

Filing Date

10/9/01

Group Art Unit

CHISTRE	SE PER S	•	U.S. P.	ATENT DOCUMENTS			
*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
<del>-</del>	A28	5,835,883	11/10/98	Neff, et al.	702	7	
	A29	5,936,913	08/10/99	Gill, et al.	367	25	
	A30	6,176,323	01/23/01	Weirich, et al.	175	40	
	A31	6,206,108	3/27/01	MacDonald, et al.	175	24	
	A32	6,023,444	2/8/00	Naville	367	82	
	A33	6,262,941	7/17/01	Naville	367	82	
	•	OTHER D	OCUMENT	S (Including Author, Title, Date, Pe	rtinent Pages, Etc.)		
	B1	. , ,		ure on Ultrasonic Veloci ical Prospecting, vol. 45,	•		r-Surface
	B2	Best, A.I., McCann, C., and Sothcott, J., "The Relationships Between the Velocities, Attenuations and Petrophysical Properties of Reservoir Sedimentary Rocks", Geophysical Prospecting, vol. 42, pp. 151-178, 1994.					
	Bowers, G.L., Pore Pressure Estimation from Velocity Data: Accounting for Ove Mechanisms Besides Undercompaction, 1994 IADC/SPE Drilling Conference, Da SPE 27488, pp. 515-530, 1994.						
	В4	Cadoret, T., Mavko, G., and Zinszner, B., "Fluid Distribution Effect on Sonic Attenuation in Partially Saturated Limestones," Geophysics, vol. 63, no. 1, pp. 154-160, February 1998. Christensen, N.I., and Wang, H.F., "The Influence of Pore Pressure and Confining Pressure					
	B5						g Pressure
	В6	Dunn, K.J., "Acoustic Attenuation in Fluid-Saturated Porous Cylinders at Low Frequencies," J. Acoust. Soc. Am., vol. 79, no. 6, pp. 1709-1721, June 1986.					
	В7	Dunn, K.J., "Samp	ole Boundary	Effect in Acoustic Atter L., vol. 81, no. 5, pp. 1259	uation of Flu		Porous
	B8	Dvorkin, J. Nolen	-Hoeksema, 1	R., and Nur, A., The Squ 59, no. 3, pp. 428-438, N	irt-Flow Mecl	nanism: Mac	roscopic
	В9	Dvorkin, J., and N	lur, A., "Dyn	amic Poroelasticity: A Us, vol. 58, no. 4, pp. 524-	Inified Model	-	uirt and the
	B10	Dvorkin, J., Mavk	o, G., and No	ar, A., "Squirt Flow in Fu ary-February 1995.			ophysics,
	B11		l., "Acoustic	Imaging of Reservoir St	ructure from a	Horizontal	Well", The
	t	T 111		·			

**EXAMINER** 

DATE CONSIDERED

Resonance and Sonic Waveform Data", Geophysics, vol. 54, no. 1, pp. 76-81, January 1989.

Goldberg, D., and Zinszner, B., "P-wave attenuation Measurements from Laboratory

Green, D.H., and Wang, H.F., "Fluid Pressure Response to Undrained Compression in

Saturated Sedimentary Rock", Geophysics, vol., 51, no. 4, pp. 948-956, April 1986.

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

B12

B13

FORMATION DISCLOSURE CITATION
(Use several sheets if necessary)

	Docket Number (Optional)	Application Number
	PM 2000.010	09/973,529
1	Applicants	
	Hans Thomann, et al.	
	Filing Date	Group Art Unit
	10/9/01	

STRANCE	OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)
B14	Han, De-hua, Nur, A., and Morgan, D., "Effects of Porosity and Clay Content on Wave Velocities in Sandstones", Geophysics, vol. 51, no. 11, pp. 2093-2107, November 1986.
. B15	Jones, T.D., "Pore Fluids and Frequency-Dependent Wave Propagation in Rocks", Geophysics, vol. 51, no. 10, pp. 1939-1953, October 1986.
B16	and Pressures", Geophysical Research Letters, vol. 10, no. 2, pp. 140-143, February 1983.
B17	Lucet, N., and Zinszner, B., "Effects of Heterogeneities and Anisotropy on Sonic and Ultrasonic Attenuation in Rocks", Geophysics, vol. 47, no. 8, pp. 1018-2026, August 1992.
B18	Lucet, N., Rasolofosaon, P.N.J., and Zinszner, B., "Sonic Properties of Rocks Under Confining Pressure Using the Resonant Bar Technique", J. Acoust. Soc. Am., vol 89, no. 3, pp. 980-990, March 1991.
B19	Dispersion in Saturated Rocks", Geophysics, vol 59, no. 1, pp. 87-92, January 1994.
B20	Layered Rock", Geophysical Research Letters, vol. 12, no. 10, pp. 721-724, October 1985.
B21	Geophysics, vol. 54, no. 4, pp. 524-527, April 1989.
B22	and Vycor Porous Glass", J. Acoust. Soc. Am., vol. /1, no. 6, pp. 1458-1468, June 1982.
B23	Chemistry of Porous Media, American Institute of Physics, pp. 131-143, 1984.
B24	O'Connell, R. J., and Budiansky, B., "Viscoelastic Properties of Fluid-Saturated Cracked Solids", Journal of Geophysical Research, vol. 82, no. 36, pp. 5719-5735, December 10, 1977.
B25	O'Hara, S.G., "Influence of Pressure, Temperature, and Pore Fluid on the Frequency- Dependent Attenuation of Elastic Waves in Berea Sandstone", Physical Review A, vol.32, no. 1, pp.472-488, July 1985.
B26	O'Hara S.G. "Elastic-Wave Attenuation in Fluid-Saturated Berea Sandstone", Geophysics,
В27	Sands", Geophysics, vol. 45, no. 12, pp. 1/80-1/92, December 1980.
B28	Parra, J.O., "The Transversely Isotropic Poroelastic Wave Equation Including the Biot and the Squirt Mechanisms: Theory and Application", Geophysics, vol. 62, no. 1, pp. 309-318, January-February 1997.
B29	Geophysics, vol. 62, no. 4, pp. 1163-1176, July-August 1997.
B30	Sams, M.S., Neep, J.P., Worthington, M.H., and King, M.S., "The Measurement of Velocity Dispersion and Frequency-Dependent Intrinic Attenuation in Sedimentary Rocks",
, ' -	Geophysics, vol. 62, no. 5, pp. 1456-1464, September-October 1997.

DATE CONSIDERED

tion considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in d. Include copy of this form with next communication to applicant.

Copyright 1994-97 LegalStar PO9A/REV03 Patent and T

	ヒッ		Docket Number (Optional)	A selfered St. 1
10,			PM 2000.010	Application Number
<i>y</i> –	. m	SUPPORMATION DISCLOSURE CITATION	Applicants	09/973,529
1 3	Min	(Use several sneets if necessary)	Hans Thomann, et al.	
AUG 1 3		<i>\$\frac{1}{2}</i>	Filing Date	Group Art Unit
1	4		10/9/01	<u></u>
STR	MERCE	OTHER DOCUMENTS (Including Author, Title, Date, Peri	tinent Pages, Etc.)	
		Spencer, J.W., Jr., "Bulk and Shear Attenuation in Berea	Sandstone: The Eff	ects of Pore
1	B3	1 raids, Journal of Geophysical Research, vol. 84, no. B	13. pp. 7521-7523. I	December 10
				<b>₽</b>
<b>[</b>		Spencer, J.W., Jr., "Stress Relaxations at Low Frequencies Attenuation and Modulus Discussion in Frequencies	og in Eluid actual 1	D 1
	B32	Attenuation and Modulus Dispersion", Journal of Geoph	es in Fluid-Saturated	Rocks:
		1803-1812, March 10, 1981.	ysical Research, vol.	. 86, no. B3, pp.
	<del>                                     </del>	Kamata M et al. "Deill hit asiani di a		·
	B33	Kamata, M., et al, "Drill- bit seismic a service for drilling	g optimization", SPV	$VLA$ , $38^{th}$
		Symposium, June 15-18, 1997.		•
	B34	Kamata, M., Underhill, W., Meechan, R., and Nutt, L., "I	Real-time seismic-wi	hile-drilling
		_ cher savings, improves safety. Petrol. Eng. Vol. 70, no.	10 nn 27 20 Ostal	1007
	B35	when the street interesting seismic-water generates genera	hile-drilling technol	Ogy" Offshore
	-	1 pp. 1 1, 104, Watch 1999.		
	B36	Meehan, R., et al, "Rekindling interest in seismic while di	rilling" Oilfield Des	·
		January 1993.	ming, Officia Kev	new, pp. 4-13,
	Dag	Meehan, R., Nutt, L., Dutta, N., and Menzies, J., "Seismic		
	B37	hazards, choose chasing point" Oil and Gog Jayrest	information helps p	predict drilling
		hazards, choose chasing point", Oil and Gas Journal, pp. 5	03-60, May 11, 1998	
	B38	Nutt, L., "Drill bit seismic improves drilling data", The At 57-62, November 1997.	merican Oil & Gas F	Reporter, pp.
	<del>                                     </del>	1 5 / 02, 140 volition 199/.		
	B39	Poletto, F., et al, "Seismic while drilling using PDC signal	ls - SEISBIT experie	ence and
	D39	Poispectives, EAGE 39 Conference and Technical Fybi	bition, Geneva, Swit	zerland. May
		1 2 0 0, 1997.	·	24
	B40	Ramaswamy, M., and Ioup, G.E., "Autocorrelation estimal spectral deconvolution". Good and a second of the second o	tion using constraine	ed iterative
		because deconvolution, Geophysics, vol. 54 no. 3 nn. 3	21,301 March 1000	
•	B41	Nector, J. W., III, Drill String wave modes produced by a	working drill hit" 6	ond American
		Living. DEC, Expanded Abstracts, pp. 155-15x 1997		
1	B42	Rector, J.W., III and Hardage R A "Padiation notters are	d goignais	
	D42	rollercone drill bit", Geophysics, vol. 57, no. 10, pp. 1319-	u seisinie waves gen	erated by a
	D.40	Rector, J.W., III, and Marion, B.P., "The use of drill-bit en	1333, October 1992	
	B43	source", Geophysics, vol. 56, no. 5, pp. 628-634, May 199	ergy as a downhole	seismic
		Rector I W III Marion D.D. and H. 1	l	
	B44	Rector, J.W., III, Marion, B.P., and Hardage, R.A., "The use VSP measurements" 7th ASEC Co. 6	se of an active drill b	oit for inverse
		VSP measurements", 7 <sup>th</sup> ASEG Conference and Exhibition 24-29, 1989.	ı, vol. 20, pp. 343-34	6, September
		: ->, 1>0>,		
	B45	Rector, J.W., Marion, B.P., and Widow, B., "Use of drill bi	it energy as a downh	ole seismic
		bource, 36 Ann. Ill. Mig. Of SECT. Expanded Abstracts to	nn 161 164 1000	
		Trumami, D.R., Nauler, H., Clark, V.A., and Ahlberg J.A.	"Fraguener des	lence of
	B46	solstime dissipation in saturated rock", Journal of Geophysic	cal Research Tottom	vol 9 1
		pp. 50 50, January 1981.		
	T	Todd, T., and Simmons, G., "Effect of pore pressure on the		
	B47	in low-porosity rocks" Journal of Geophysical Days	velocity of compres	sional waves

MINER

DATE CONSIDERED

in low-porosity rocks", Journal of Geophysical Research, vol. 77, no. 20, pp. 3731-3743, July

AMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in ormance and not considered. Include copy of this form with next communication to applicant.

10, 1972.

## FORMATION DISCLOSURE CITATION (Use several sheets if necessary) OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) Tutuncu, A.N., Podio, A.L., and Sharma, M.M., "Nonlinear viscoelastic behavior of sedimentary rocks, Part II: Hysteresis effects and influence of type of fluid on elastic moduli", Geophysics, vol. 63, no. 1, pp. 195-203, January-February 1998. Tutuncu, A.N., Podio, A.L., Gregory, A.R., and Sharma, M.M., "Nonlinear viscoelastic behavior of sedimentary rocks, Part I: Effect of frequency and strain amplitude", Geophysic

A.C.		OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)
ENT & TRA		Tutuncu, A.N., Podio, A.L., and Sharma, M.M., "Nonlinear viscoelastic behavior of
	B48	sedimentary rocks, Part II: Hysteresis effects and influence of type of fluid on elastic
		moduli", Geophysics, vol. 63, no. 1, pp. 195-203, January-February 1998.
		Tutuncu, A.N., Podio, A.L., Gregory, A.R., and Sharma, M.M., "Nonlinear viscoelastic
	B49	behavior of sedimentary rocks, Part I: Effect of frequency and strain amplitude", Geophysics,
		vol. 63, no. 1, pp. 184-194, January-February 1998.
		Vo-thanh, D., "Effects of fluid viscosity on shear-wave attenuation in saturated sandstones",
	B50	Geophysics, vol. 55, no. 6, pp. 712-722, June 1990.
	5	White, J.E., "Biot-Gardener theory of extensional waves in porous rods", Geophysics, vol. 51,
B51		no. 3, pp. 742-745, March 1986.
	250	Winkler, K.W., "Frequency dependent ultrasonic properties of high-porosity sandstones"
	B52	Journal of Geophysical Research, vol. 88, no. B11, pp. 9493-9499, November 10, 1983.
	Dea	Winkler, K.W., "Dispersion analysis of velocity and attenuation in Berea sandstones", Journal
	B53	of Geophysical Research, vol. 90, #B8, pp. 6793-6800, July 10, 1985.
	B54	Winkler, K.W., and Nur, A., "Seismic attenuation: effects of pore fluids and frictional
	B34	sliding", Geophysics, vol. 47#1, pp. 1-15, January 1982.
	B55	Aleotti, L., et al, 1994, "Impact of drill-bit seismic method on explorative wells", EAGE-56 <sup>th</sup>
	633	Meeting and Technical Exhibition., Vienna, Austria, June 6-10, 1994.
	B56	Aleotti, L., et al, "SEISBIT-Latest applications of seismic while drilling technology", 57 <sup>th</sup>
B30		EAGE Conference and Technical Exhibition, May 29–June 2, 1995.
	B57	Aleotti, L., et al, "Seismic while-drilling technology: use and analysis of drill-bit seismic •
B37		source in a cross-hole survey", Geophysical Prospecting, vol. 47, pp. 25-39, May-June, 1995.
		Bertelli, L., Savini, L., and Martera, M.D., 1997, "While Drilling Methodologies-the
	B58	integration strategy and the impact of E&P activities", EAGE 59 <sup>th</sup> Conference and Technical
		Exhibition, Geneva, Switzerland, May 26–30, 1997.
		Borland, W.H., et al, "Drill bit seismic, vertical seismic profiling, and seismic depth
	B59	imagining to aid drilling decisions in the Tho Tinh structure-Nam Con Son basin-Vietnam",
		95 <sup>th</sup> Society of Exploration Geophysicists of Japan, Kyoto, October 23, 1996.
		Borland, W.H. and Drew, J, "Drilling Hazard Risk Reduction in Brunei Using Surface and
	B60	Drill Bit Seismic Data", IADC Well Control Conference for the Asia Pacific Region,
		Singapore, December 4-5, 1997.
	B61	Jackson, M., and Einchcomb, C., "Seismic While Drilling: Operational Experiences in
		Vietnam", World Oil, pp. 50, 53, March 1997.
	B62	Williams, D.M., et al, 1984, "The Long Spaced Acoustic Logging tool", SPWLA 25 <sup>th</sup> Annual
		Logging Symposium, June 10-13, 1994.
		Dickinson, George, "Geological Aspects of Abnormal Reservoir Pressures in Gulf Coast
	B63	Louisiana", Bulletin of the American Assoc. of Petroleum Geologists, Vol. 37, No. 2, pp.
		410-432, February 1953.
[·.	B64	Payne, Michael A., "Looking Ahead with Vertical Seismic Profiles", Geophysics, Vol. 59,
	i	No. 8, pp. 1182-1191, August 1994.

	B64	Payne, Michael A., "Looking Ahead with No. 8, pp. 1182-1191, August 1994.	th Vertical Seismic Profiles", Geophysics, Vol. 59,				
EXAMINER			DATE CONSIDERED				
			Sind Control Line				
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

## NFORMATION DISCLOSURE 4 TATION (Use several sheets if necessary)

Docket Number (Optional) PM 2000.010 Applicants Hans Thomann, et al. Filing Date Group Art Unit

l br	_&		10/10/01			
ENI & T	AMERICA	OTHER DOCUMENTS (Including Author, Title, Date, Per	tinent Pages, Etc.)			
	B65	Macpherson, J.D., Jogi, P., and Kingman, J.E., "Application and Analysis of Simultaneous Near Bit and Surface Dynamics", IADC/SPE 39397, pp. 857-869, March 3-6, 1998.				
	B66	Shuttleworth, N.E., van Kerkoerle, E.J., Folmer, D.R., and Foekema, N., "Revised Drilling Practices, VSS-MWD Tool Successfully Addresses Catastrophic Bit/Drillstring Vibrations", IADC/SPE 39314, pp. 925-933, March 3-6, 1998.				
	B67	Meehan, R.J., Nutt, L., Dutta, N., and Menzies, J., "Drill Bit Seismic: A Drilling Optimization Tool", IADC/SPE 39312, pp. 177-190, March 3-6, 1998.				
	Heisig, G., Sanco, J., and Macpherson, J.D., "Downhole Diagnosis of Drilling Dynamics Data Provides New Level Drilling Process Control to Driller", SPE 49206, pp. 649-658, September 27-30, 1998.					
	B69	Borland, W., et al., 1997, "Real-time Answers to Well Drilling and Design Questions", Oilfield Review, Summer 1997, pp. 2-15.				
			_,,			
· · · · · · · · · · · · · · · · · · ·						
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
	-	· •				

EXAMINER	DATE CONSIDERED
,	
EXAMINER: Initial if citation considered, whether or not citation is in confe	ormance with MPEP Section 609; Draw line through citation if not in
conformance and not considered. Include copy of this form with next comm	unication to applicant.

FORM PTO-A820 (also form PTO-1449) Copyright 1994-97 LegalStar

PO9A/REV03

Patent and Trademark Office\* U.S. Department of Commerce SHEET 6 OF 6



Will 3 Till	ST. SE	NFORMATION DISC		ION	PM 2000.0 Applicants Hans Thoman	010	Application Number 09/973,529
Pille.		(Use several sheets if necessary)			Filing Date 10/9/01		Group Art Unit
ENI &			U.S. PATE	NT DOCUMENTS			
*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE NAME		CLASS	SUBCLA	FILING DATE IF APPROPRIATE
	-						
		·					
		OTHER D	OCUMENTS (In	cluding Author, Title, Date	, Pertinent Pages, Etc.)		
		Gas Research Instit Assessment of Exis	sting and Promis	sing Technologies	", February 1999	). •	
		Jogi, P.N., et al., "I ETCE99-6648, 199	99, pp. 1-8. •				
		Kozawa, T., et al., Symposium of Japa	an, September 2	4-25, 1997, pp. 1-	6. •		
		Mavko, G.M., et al International SEG	., "Wave Attenu Meeting, Housto	nation in Partially on. Texas. October	Saturated Rocks' r 27, 1976, pp. 10	'', 46 <sup>th</sup> Ar 51-178.	nual
		Rector, J.W., "Dril June 1-5, 1992, pp.	l Bit Wavefields	s", 54 <sup>th</sup> Meeting ar	nd Technical Exh	nibition, I	Paris France,
		Julie 1-3, 1992, pp.	220-221.		<u> </u>	*	
			-				
						•	
<del></del>						•	
		1 14					
					<u>.                                      </u>		
	-						

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

DATE CONSIDERED

FORM PTO-A820 (also form PTO-1449)

**EXAMINER** 

Copyright 1994-97 LegalStar

PO9A/REV03

Patent and Trademark Office\* U.S. Department of Commerce SHEET 1 OF 1